Income Intervention Quick Scan: Certification

Farmer Income Lab Intervention Quick Scan

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Wageningen Centre for Development Innovation
Wageningen, September 2018

Report WCDI-18-025

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Emily Bouwman, 2018. *Income Intervention Quick Scan: Certification; Farmer Income Lab Intervention Quick Scan.* Wageningen Centre for Development Innovation, Wageningen University & Research. Report WCDI-18-025. Wageningen.

Abstract UK This quick scan, commissioned by the Farmer Income Lab, is part of a wider research effort looking at, “What are the most effective actions that lead buyers can take to enable smallholder farmers in global supply chains to meaningfully increase their incomes?”. The quick scan provides an overview of the publicly available evidence on the impact of certification schemes have had on raising farmer income. Such subsidies have had little positive effect on farmer income, are not notably beneficial for women nor is this effect long-term. They have been applied at large scale. This quick scan is part of a series of 16, contributing to a synthesis report “What Works to Raise Farmer’s Income: a Landscape Review”.

Keywords: farmers’ income, intervention, agriculture, smallholders, certification, Fairtrade, organic, UTZ, cocoa, coffee, fruit, vegetables

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Report WCDI-18-025

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List of abbreviations and acronyms

WCDI	Wageningen Centre for Development Innovation, Wageningen University & Research
WUR	Wageningen University & Research

1 Introduction

1.1 Definition

Certification schemes set voluntary standards and monitor their compliance (through independent auditors) to make agricultural production socially sustainable and agricultural trade fairer for producers and workers. They are expected to contribute to a wide range of socio-economic and environmental outcomes, ultimately improving the wellbeing of farmers and agricultural workers, whether employed by agribusiness or individual producers. Certification schemes are best understood as bundles of interventions with varying emphasis on the various components (Oya et al. 2017).
Kuit and Waarts (2014) and Oya et al. (2017) both found that Fairtrade is a dominant scheme. Kuit and Waarts (2014) found that Fairtrade was the main scheme used in the 14 credible studies studying coffee, Organic was used in the one credible study studying cocoa and GLOBALGAP was used in the two credible studies studying fruit and vegetables. Oya et al. (2017) found that Fairtrade was evaluated by over half (52%) of all studies included. Many studies assessed multiple schemes, either through comparison or because target groups were certified in more than one program.
Coffee was the most commonly assessed commodity in the review done by Kuit and Waarts (2014) and in the studies included in the meta-analysis done by Oya et al. (2017). This is consistent with the fact that coffee dominates Fairtrade, which is the most studied certification scheme and is also a key commodity for other certification schemes like Utz. Kuit and Waarts (2014) also assessed the commodities cocoa, fruit and vegetables and cotton. However, studies on cotton did not report effects on farmer income, so this commodity is not reported on in this review.

1.2 Theory of change

Oya et al. (2017) propose 4 main interventions that certification schemes can implement, namely capacity building, market interventions, premium-funded social investments and labor standards. Figure 1 shows how Oya et al. (2017) suggest the theory of change looks like. It should be noted however, that Oya et al. (2017) could only draw conclusions on whether being part of a certification scheme had any impact on the outcome, because most studies estimate effect sizes from a certification scheme as a whole and do not differentiate between different types of interventions.

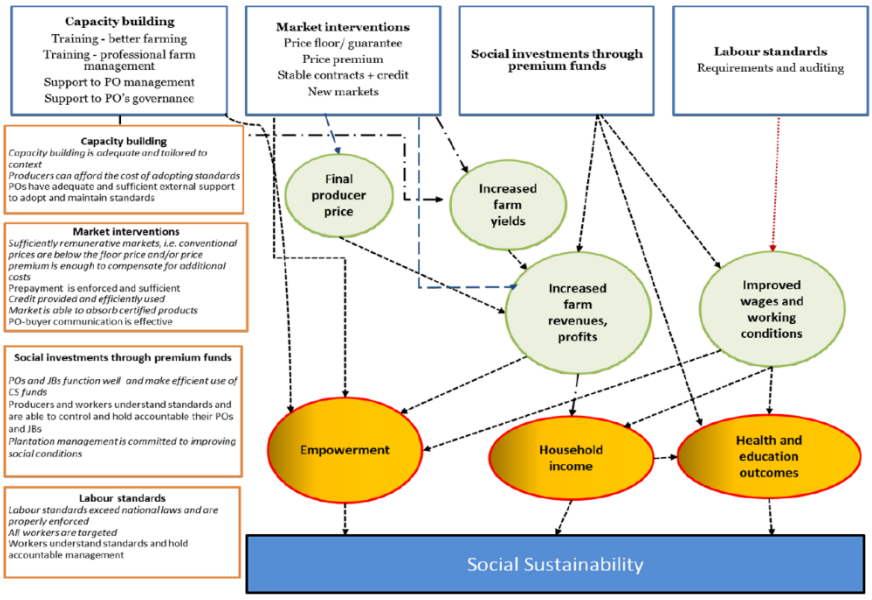


Figure 1 *Theory of change.*

1.3 Geography

Oya et al. (2017) mostly included studies in Latin America and the Caribbean (83 studies), followed by Africa (65 studies). Asia was found to be underrepresented (20 studies). Kuit & Waarts (2014) found that the studies on coffee, mainly took place in Central America, the one credible study studying cocoa took place in Uganda and the two credible studies studying fruit and vegetables were both conducted in Thailand.

1.4 Role of actors

Certification schemes arise for different reasons. It can be because buyers impose a range of conditions to enter markets as a way of creating product differentiation. It can be when ethical and social movements are initiated that for example lobby for a 'fair' market. The variety of certification schemes has contributed to creating a range of market segments that also influence what is valued by consumers. For example trends in consuming countries demanding quality have included the emergence of the 'specialty coffee market'. At the same time, some of the emerging standards have originated in public regulation for food safety. The emergence of these 'standardising networks' responds to contrasting orientations, one market and consumer driven (GlobalGAP) and one more concerned with poverty in developing countries and the plight of small producers and workers (Fairtrade and other ethical trade initiatives). In the case of certification schemes for agricultural and food production, there are three main types of actors that may receive certification (Oya et al., 2017):

- Individual farmers (agricultural producers)
- Farmers (producers) organizations
- Export firms/organizations

Organizational differences between certified groups can be important. When a producer-managed certification group becomes certified, they enter into new business relationships, including contracts. Therefore, prices and market access can improve. However, an exporter-managed certification group, already has contact with their exporter (main buyer) before the group becomes certified, so the impact of certification is therefore limited (Kuit & Waarts, 2014).

2 Summary and justification of assessment

Strength of outcome		
Assessment criterion	**WUR score**	**Rationale for score**
Scale: Size of the population intervention could impact and potential to scale to other contexts (i.e., geographies, value chains)	Low	• Sample sizes of the studies included in the meta-analysis ranges between 147 to 845. One study had a sample size of 1600. • Results are based on studies covering mainly Fairtrade and Latin-America. o Oya, Schaefer, Skalidou, McCoster & Langer (2017) • The meta-analysis showed high heterogeneity, indicating that the studies that were included in the analysis focus on different factors (e.g. different certification schemes, commodities, contexts), which can make it difficult to generalize the findings. o Kuit & Waarts (2014) & Oya, Schaefer, Skalidou, McCoster & Langer (2017)
Impact: degree of increase in incomes	Medium	• The overall effect on certified farm income is a modest and statistically significant positive effect, mostly driven by studies reporting on GlobalGAP and Utz (average increase 11%, range from 2% to 20% • When only studies on net income are included, the effect remains positive, however not statistically significant anymore. • The meta-analysis was restricted by an insufficient number of effect sizes per outcome to reach any robust conclusion. o Oya, Schaefer, Skalidou, McCoster & Langer (2017) • The effect from certifying coffee products on farmer income is neutral in most cases. One cocoa-study shows that participation in a certified Organic contract scheme leads to increases net cocoa (and vanilla) revenues by, on average, 150%. Two fruit and vegetable studies show that certification has a neutral effect on income. • Less credible studies show a brighter picture, namely that the impact on income is positive in most cases, followed by a neutral impact. Only several studies find negative effects. This is most likely because these studies do not take all the costs into account. o Kuit & Waarts (2014)
Sustainability: financial ability of farmer income increase to endure independent of ongoing external support	Medium	• Investments in certification only start to pay off after a few seasons, among others because implementation costs are not an issue anymore. o Kuit & Waarts (2014) • After a longer period of time, more buyers of certified products are established and incomes will increase more as well. o Oya, Schaefer, Skalidou, McCoster & Langer (2017)

Gender: Potential of intervention to positively impact women	High	• Gender equality is an important aspiration in some certification schemes.
		• The majority of available studies (22 studies) focused on women's participation in certified Producer Organisations report limited female participation
		  o Oya, Schaefer, Skalidou, McCoster & Langer (2017)
		• To keep on differentiating, gender requirements might start to play a role in certification.
		• Because of certification, women become burdened with extra tasks, in addition to their already full schedule.
		  o Kuit & Waarts (2014)

Strength of evidence		
Assessment criterion	**WUR score**	**Rationale for score**

Breadth: amount of rigorous literature that exists on the impact of the intervention, as defined by the minimum quality of evidence for this paper
 	
High: >20 studies
Medium: 7-20 studies
Low: <7 studies
	Medium	• In total, Oya et al., (2017) examined 43 quantitative studies and 136 qualitative studies.
		• The meta-analysis on farmer income included 10 studies.
		• All studies included in the meta-analysis have study designs that come as close to a causal attribution of effects to certification as possible.
		  o Oya, Schaefer, Skalidou, McCoster & Langer (2017)
		• In total, Kuit and Waarts (2014) examined 270 studies.
		• Particular emphasis is placed on 19 studies that have a credible mechanism by which to identify causality of effects.
		  o Kuit & Waarts (2014)

Consistency: Degree to which the studies reviewed are in agreement on the direction of impact (i.e., positive or negative)	Medium	• Overall, the meta-analysis finds a positive impact of certification on income based on 10 studies, however three of these studies find a negative effect and one study finds a neutral effect.
		  o Oya, Schaefer, Skalidou, McCoster & Langer (2017)
		• Most credible studies show a neutral effect, however some studies also find positive effects and some even negative effects.
		• The direction of effects can depend on what costs a study does or does not include in the analysis.
		  o Kuit & Waarts (2014)

3 Methodology

The information in this review is gathered from a meta-analysis on 29 studies (in total 44 effect sizes were used for eight main meta-analyses) and a systematic review of 136 studies (Oya et al., 2017) and a review of 270 studies (Kuit & Waarts, 2014).

Kuit and Waarts (2014) examined 270 studies, covering 8 certification schemes and 5 commodities (cocoa, coffee, cotton and fruit and vegetables). Particular emphasis is placed on 14 coffee-studies, 1 cocoa-study and 2 fruit and vegetable studies that have a credible mechanism by which to identify causality of effects. Furthermore 29 coffee-studies, 5 cocoa-studies, 21 fruit-studies and 8 vegetable-studies were examined that include relevant quantitative information but lack a credible mechanism by which to identify causality of effects.

Oya et al. (2017) answers two research questions. For research question 1, 43 quantitative studies in 44 individual papers were included, to study the effects of certification schemes for sustainable agricultural production, in terms of endpoint socio-economic outcomes for household/individual wellbeing, including farm income. For research question 2, 136 qualitative studies from 114 individual papers were included, to indicate why (circumstances, barriers, facilitators) certification schemes have the (un)intended effects. 20 studies were included for both research questions.

To answer research question 1, Oya et al. (2017) performed a meta-analysis with effect sized from 10 studies. Oya et al. (2017) look at both gross and net income from certified production, which takes all the changes into account as far as possible. The studies included compare the income producers receive from the production and sale of a particular certified commodity, such as coffee, with the income received by otherwise equivalent groups producing the same commodity but lacking certification. Due to demand limitations in the markets for certified products, producers may only be able to sell part of their production as certified, despite the fact that all of it is certified. This situation is typical of coffee production for instance.

Oya et al. (2017) found that over the last decade publication of (particularly qualitative) studies assessing certification schemes has increased (Figure 2).

Figure 10: Cumulative number of studies published per year[50]

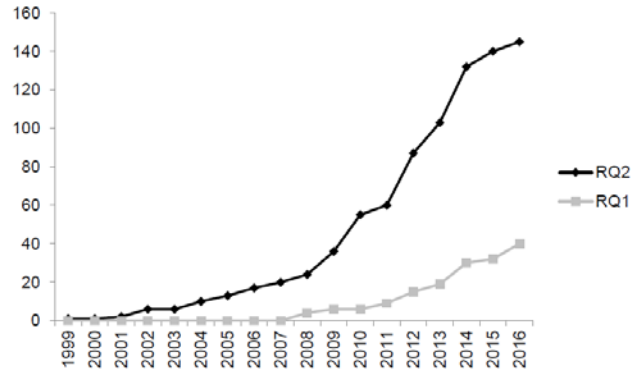


Figure 2 *Cumulative number of studies on assessing certification schemes published per year (Oya et al., 2017).*

In Oya et al. (2017), a meta-analyses was done when at least two effect sizes were available for a certain outcome. No distinction was made between geographic and socio-economic contexts, study designs, analytical methods and studied commodities and certification schemes, so high levels of heterogeneity are found in the analyses. Whenever there are at least five studies for a given outcome,

moderator analysis will be done that separates out studies by the certification schemes. For the outcome farmer income from certified production results are also separated by crop type.

All studies examined in Oya et al. (2017) have study designs that come as close to a causal attribution of effects to certification as possible. The two most commonly used study designs were controlled before-and-after and ex-post controlled observational studies. Propensity score matching, difference-in-difference, and variations on least squares analyses were the most common methods of analysis.

1. Oya et al. (2017) assessed if the studies included in their review were at risk of bias. Different factors were assessed for the two research questions. For research question 1, the following factors were checked:
2. Selection and confounding: Only one study was judged to have adequately controlled for selection bias.
3. Group equivalence: Only one study had a fully adequate method of analysis to ensure comparability of treatment and control groups throughout the study and prevent confounding.
4. Motivation bias: All but two studies adequately protected against motivation bias caused by the process of being observed.
5. Spill-over effects: 29 studies were not adequately protected against performance bias, either through geographical and/or social separation.
6. Selective reporting of outcome: All studies were judged to be free from evidence of the selective reporting of outcomes.
7. Selective analysis: Only half (19) of the studies were judged to be free from the suggestion of biased exploratory research methods.
8. Other bias: Other forms of bias not captured in the categories above. A common example is doubt about measurement.

Sensitivity analysis showed that the studies that were included in the meta-analysis on farmer income, did not give different results when studies high, moderate and low risk of bias were compared or when studies that were fully independently financed and those that were not were compared (Oya et al., 2017). To avoid publication bias, Oya et al. (2017) not only searched in general and subject-specific scientific databases, but also searched sources of grey literature such as databases of theses and the websites of certification bodies, research institutes and NGOs working on related issues. However, sensitivity analysis did show a difference when looking at where studies were published. When the two studies published in peer-reviewed journals were not considered, a positive and statistically significant effect is found, while the pooled effect for the peer-reviewed group is no longer statistically significant.

4 Impact

4.1 Effect on income

4.1.1 Credible studies

Oya et al. (2017) found in a meta-analysis of 10 studies that the overall effect from certification is an increase in farmer income. The overall effect is statistically significant. In this analysis, studies reporting net incomes from certified production, were combined with ones producing gross incomes. Removing the three studies reporting gross income, still produces a positive effect, however not statistically significant. When comparing different certification schemes, GlobalGAP (commodity horticulture) is the only scheme that has a statistically significant positive impact on income. Furthermore, for all schemes apart from GlobalGAP there are studies reporting negative effects, even though none of these are statistically significant. In the case of Utz, where the heterogeneity among studies is especially high, this may be driven by differences between commodities, but Fairtrade shows substantial variation even though all three of the studies look at coffee. When comparing different crops, the GlobalGAP certified horticultural producers see a statistically significant positive impact, as does the one study reporting on honey producers. No clear pattern emerges for the other crops and none of the effects size estimates for the other crops are statistically significant, though the wide dispersion of effect size estimates is particularly noticeable in coffee.

Kuit and Waarts (2014) examined the impact of certification in income separately for every commodity. Based on 14 studies that have a credible mechanism by which to identify causality of effects, the effect from certifying coffee products on farmer income is neutral in most cases. For cocoa, one credible study shows that participation in a certified Organic contract scheme leads to increases net cocoa (and vanilla) revenues by, on average, 150%. For fruit and vegetables, two credible studies show that certification has a neutral effect on income in a producer-managed certified group and in a certified group managed by an exporter. In the producer-managed certified group price increases, but productivity decreases and in the certified group managed by an exporter there was no price difference and the productivity increase was not large enough to improve income from fruit and vegetable production.

4.1.2 Less credible studies

Amongst the studies that Oya et al. (2017) could not extract effect sizes from, three studies report higher incomes form certified production, looking at Ecuadorian cocoa farmers, Colombian coffee farmers and Indian grape growers, respectively. One study finds no statistically significant effect on income for Ugandan coffee farmers and a reduction in income for certified farmers in Vietnam. Similarly, another study finds no statistically significant effect on incomes for coffee farmers in Nicaragua

Kuit & Waarts (2014) found that amongst studies with quantitative information on the possible impact of income, but without a credible mechanism by which to identify causality of effects, for coffee 11 studies find positive income effects from certification, six find no effects and two find negative effects. For cocoa, three out of five studies find neutral impacts on income from certification. For fruit, results of 21 studies are mixed. Incomes can either increase or stay the same, regardless of which certification scheme is applied. Finally, for vegetables, results show that GLOBALG.A.P. certified producers tend to increase their income.

4.2 Interventions used in certification schemes

As mentioned before, Oya et al. (2017) stated that conclusions can only be drawn on whether being part of a certification scheme has impact on farmer income, because most studies estimate effect sizes from a certain certification scheme as a whole and not individually for the underlying interventions. However, it is possible to infer which bundles of interventions dominate. The most common intervention in the studies included for research question 1 was a market intervention (97%). Labour was the least evaluated type of intervention (28%). For research question 2 the most common interventions are price and premium (~60%), while the fewest studies looked at market interventions (~25%). Furthermore, results show that the certification schemes that have a larger positive impact on farmer income are GlobalGAP and Utz. The reason that these schemes are more effective, could be because they have a combination of more effective capacity building for productivity increases, combined with more remunerative markets, partly because of the type of commodity (higher value-added horticulture vs coffee or cocoa), and partly because of the quality demands associated with these schemes. Oya et al. (2017) also found that the evidence from studies on Fairtrade is less clear and effect size estimates are not statistically significant. This could be the result of a combination of higher prices, lower or similar yields and a small market.

4.3 Intermediate and other outcomes

Yields, price, production costs and productivity

Oya et al. (2017) have synthesized effects along the causal chain, moving from intermediate to endpoint outcomes. Starting with yields, as the amount of crop produced per unit of land can help raise (or reduce) farmer incomes, and price, as revenue is also influenced by price. The meta-analyses on yields (5 studies) showed an overall reduction in yields for certified farmers, although the effect was not statistically significant. One study (Jena et al., 2012) was a clear outlier, who indicated a much larger decrease than the other studies. Within the other four studies, two studies find slight decrease in yields (of which one is significant) and two studies a slight increase (of which one is significant). Changes in yields can have a large variety of causes, from weather to the effects of tree age in coffee. Moreover, effects may be inconsistent across time. The meta-analysis on price (4 studies) showed an overall increase in the price and the effect is statistically significant. This result is given further credence by one of the most positive effects found, is also built on a particularly large set of observations. On the other hand three of the four results are based on just one commodity, namely coffee.

Kuit and Waarts (2014) found that in 60% of the 14 credible coffee-studies, certification has positive effects on price, mainly caused by the Fairtrade minimum price. However, production costs for certified coffees are higher in 40% of the studies, to a large degree because Organic production increases labour costs. In the one credible study on cocoa, participation in a certified Organic contract scheme also seems to lead to increases in prices by, on average, 150%. The effects found are also connected to the contract farming scheme in which certified Organic farming is implemented. In the (less credible) studies, Kuit and Waarts (2014) also found price increases in all Organic cocoa-studies that examined price and in all the fruit-studies but one. Furthermore, two cocoa-studies find lower production costs for certified farmers, however neither one of these studies takes the investments that farmers make to become certified into account. Of studies that take a more comprehensive view, one finds no effect and three studies find negative effects of certification on production costs. In the fruit-studies, the productivity of Organic certified farmers tends to decrease or remains the same, however, two studies show productivity increases for GLOBALG.A.P. certified farmers.

Overall, based on the limited evidence available, it seems that farmer incomes are particularly influenced by certification schemes because certified producers are able to sell their produce for significantly higher prices than non-certified producers and not because certified producers raise the yields. This might be explained by the fact that certification schemes put more emphasis on quality improvements, with the expectation that this will lead to higher prices, together with the idea that certified production gives unique access to certified markets, where prices paid should be higher than

those attainable outside of such markets. Fairtrade for example, provides guaranteed minimum prices to 'insure' certified producers against some of the downside risks they face in selling their produce (Oya et al., 2017).

4.4 Applicability of impact

Oya et al. (2017) identified wealth (35 studies) and gender (22 studies) as two pillars to be highly significant when it comes to implementing certification schemes.

Wealth

The adoption of standards required by a certification schemes often depends on the capacity to bear the extra costs related to certified production. This capacity is highly dependent on the wealth and resources available to producers, but also on their capacity to obtain external support to finance the certification process by aid providers, buyers, or partnerships of actors. Increased costs of certified production discourage producers with less resources to become certified but also directly exclude the producers who cannot afford compliance with higher quality standards. Another decisive factor appears to be producers' financial ability to withstand important payment delays.

Production capacity, land size, and the degree of market integration are also reported to influence participation in certification schemes. Certified producers tend to be larger, and more prosperous, with higher educational levels, as well as greater involvement in producer associations. The other way around, one study in Oya et al. (2017) reporting on Rainforest Alliance, found that factories also seem to select larger farms that are already close to meeting the requirements to minimize costs. Household size appears to matter as well, as reported evidence indicates that Fairtrade-organic producers have more household members able to work, a fact possibly linked to the increased labor requirements of certified production. Education and literacy skills also appear to facilitate participation, due to the paperwork requirements, while language barriers and illiteracy can hinder participation.

Larger producers may benefit more from certification scheme, as premia are linked to volumes, are more likely to comply with stricter quality criteria and may dominate the producer organization decision-making. But mutually-beneficial relationships between larger and smaller producers are also reported, as larger producers allow producer organizations to reach the required efficiencies of scale.

Gender

Kuit & Waarts (2014) state that as certification is becoming the standard, gender requirements might start to play a role, because certification schemes will want to keep differentiating themselves from other standards. As a result, certification agencies are likely to add compliance points or data requirements on gender issues, as well as on other issues that emerge.

Oya et al. (2017) find that gender equality is already an important aspiration in some certification schemes. However, the majority of studies report limited female participation, suggesting that certification-related gender equity programs or strategies have not been able to offset the socio-cultural and organizational barriers that women commonly face. Different reasons for this exist. Female producers may find it difficult to divert attention and time from their households or their farms to attend certification-related activities. Kuit & Waarts (2014) found for example that in the cotton production, women become burdened with extra tasks that emerge as a result of certification, in addition to their already full schedule, as women do most of the work in cotton production. Also, lower education, lack of skills and knowledge are also keeping women from participating in certification schemes, and particularly from accessing leadership positions. Furthermore, unequal gender relations and violence (i.e. machismo) are commonly reported as a barrier to female participation in certified initiatives, as women often face mobility restrictions, disapproval regarding their choices or disbelief regarding their abilities, while they tend to be excluded from the economic and social benefits of certified production, even though they significantly contribute with their work. Overall, it seems that it is particularly poorer women with heavier workloads who are more likely to be excluded from participation, although women from wealthier households are also reported to be restricted

Oya et al. (2017) also found limited cases of increased female participation but this should be carefully interpreted. Women may be members only on paper just to enable better household access to credit from the producer organization, or to increase voting rights. There are some unexpected factors, however, that do appear to enhance female participation. One is male migration, as the 'operator' status is passed on to their wives, who are able to divert more time and attention to certified production, due to reduced housework resulting from the absence of the husband (and sometimes also the children). The formal recognition in certification schemes also makes visible the role of women in certified production and improves their access to commercialization channels. Moreover, single women or women living in matrilocal and matrifocal societies also seem to have better possibilities of participation.

Finally, female contributions in certified production tends to remain invisible, as female producers often lack the assets to register as producer organization members. Weak female participation is commonly reported in decision-making related to producer organization management and premium use, as well as in supervisory/management positions in certified plantations. And gender pay discrimination in certified plantations appears to persist despite certification presence (Oya et al., 2017).

Farmer segments

Certification schemes target anyone directly involved in the production of agricultural commodities as well as other actors in the supply chain. The focus population in the majority of studies included in Oya et al. (2017) were agricultural producers (particularly smallholders), relative to wage workers, either employed by corporate plantations or individual agricultural producers. Perhaps because the number of standards and associated requirements is higher for farmers than for workers.

4.5 Enhancing the intervention

Certification schemes are best understood as bundles of interventions with varying emphasis on the various components (Oya et al. 2017). Oya et al. (2017) made an overview of the different certification schemes and the intervention components they have (Table 1).

Table 1 *Different certification schemes and their components (Oya et al., 2017).*

Certification scheme	Components
4C (now Global Coffee Platform)	The Common Code for the Coffee Community (4C) includes criteria on price (price premium), labour, management, GAP, and market.
Better Cotton Initiative	Better Cotton Initiative's components include criteria on labour, management, and GAP.
Bird Friendly	Bird Friendly Coffee, a standard from the Smithsonian Migratory Bird Center, requires organic certification as a pre-requisite and otherwise focuses on environmental practices. Therefore its relevant components include price (price premium), GAP and labour criteria.
Ethical Trade Initiative (ETI)	The ETI standard is focused on labour and management components.
Fairtrade	Fairtrade includes criteria on price (guaranteed floor price), social premiums, labour, management, GAP, and market.
GlobalGAP	GlobalGAP includes components on labour and management.
Organic	Organic certification standards currently vary from country to country by regulatory agency. The standards are primarily focused on agricultural practices; relevant components include price (price premium), GAP and labour criteria.
Rainforest Alliance	The Rainforest Alliance standard includes components on GAP, labour, and management.
RSPO	The RSPO standard includes components on GAP, labour, management, and market.
Shop for Change	Shop for Change is an NGO-founded fair trade standard in India. Components include management, social premium ("capacity building premium"), labour, GAP and market.
Utz	The Utz standard includes components on GAP, labour, management, and price (price premium).

5 Key success factors

- Certified farmers are generally better educated, have more assets, are more specialized or experienced in crop production, have larger farms, have higher labor availability, have better access to services and financial and technical support for producer organizations, produces and workers and are located closer to buyers or in better agro-ecological zones, than non-certified producers. This is especially the case for GLOBALG.A.P. certified farmers, who are usually selected by exporters and do not represent the average small-scale farmer (Kuit & Waarts, 2014; Oya et al., 2017).
- Market liberalization, disintegration of regulating agencies, and lack of national quality standards leave a void that certification schemes can fill to the benefit of producers (Oya et al., 2017).
- Certification schemes benefits appear to be more valued in contexts of increased social insecurity and violence (Oya et al., 2017).
- Weak legislation, subject to frequent violations, may allow certification schemes to bring significant improvements (Oya et al., 2017).
- Producers' propensity to collaborate, high self-confidence and low risk-aversion, and higher education influence certification schemes' effectiveness (Oya et al., 2017).
- Certification is more lucrative for farmers who produce high volumes and for certificate-holders working with farmers who produce high volumes. Also a large producer organization size allows better access to export markets (Oya et al., 2017).
- The way training programs are implemented is instrumental in changing farm management practices and achieving impact. Training programs should be adjusted to farmers' training needs and provide sufficient and skilled extension staff (Kuit & Waarts, 2014; Oya et al., 2017).
- Plantation management commitment to good social and environmental practices, as well as workers' knowledge of their rights and obligations and of certifications scheme mechanisms can enhance certification scheme effectiveness.
- The presence of NGOs, government organisations or other actors already active in extension or other certification-related activities will facilitate the implementation of certification programmes, reducing costs (Kuit & Waarts, 2014).
- Generally speaking, the greater the number of farmers included in a certification programme, the lower the implementation cost will be per farmer (Kuit & Waarts, 2014).
- The more farmers are already organised in producer groups with harmonisation of standards and combined audits, the lower the certification costs (Kuit & Waarts, 2014).
- If farmers already adhere to much of the code's requirements before participating in a certification programme, upfront costs will be lower (Oya et al., 2017).
- During crop crises, certification scheme credit gains importance when other financial entities cease to support producer organizations and smallholders (Oya et al., 2017).
- The minimum price mechanism allows producer organizations to maintain their market share and provides stability for long-term investments during price slumps, however becomes irrelevant during price spikes (Oya et al., 2017).
- The existence of well-managed farmer organisations can facilitate the implementation of certification programmes, by acting as certificate-holders or by taking greater responsibility in running aspects of implementation (Kuit & Waarts, 2014).
- Donor funding of certification programmes can make certification more financially attractive. In several projects where donor funding is available, the costs per farmer tend to be higher, likely because farmers may receive more extensive support than they would otherwise get (Kuit & Waarts, 2014).
- Investments in certification only start to pay off after a few seasons, so longer term commitments from buyers to source a minimum volume of certified produce can greatly help to improve the willingness of exporters or farmer organizations to invest in certification (Kuit & Waarts, 2014). Long-lasting relations, direct and frequent contact and communication

between producer organisation and buyer also contribute to the effectiveness of certification (Oya et al., 2017)

- Farmers may benefit more from supply contracts between farmers and buyers that were introduced as part of the certification program, where minimum quality requirements lead to receiving premiums and higher prices (and higher production costs) or where farmers are offered technical assistance, credit and inputs, than from certification. (Kuit & Waarts, 2014).
- Price premiums for high quality produce taken up in the contracts are instrumental for reaching impact, compared to contract schemes in general (whether for organic or conventional crop production) (Kuit & Waarts, 2014).
- Intermediaries continue to play an important role for certified farmers, as they pay directly upon delivery, can offer advanced payments, purchase at the farm gate and have lower quality criteria (Oya et al., 2017).

6 Barriers addressed

Characteristics of producer organizations, producers, and large-scale plantations

- Cases of producer organization mismanagement and corruption appear to be recurrent, affecting producers´ participation in certification schemes and the resulting benefits (Oya et al., 2017).
- Externally-imposed producer organizations are more vulnerable to corruption and have weaker links with their members, while producer organizations formed on producers' initiative and efforts have more and better quality members' participation (Oya et al., 2017).
- Transparency in management and transactions, good credit schemes and extension support are key in enhancing members' loyalty and participation (Oya et al., 2017).
- Producers' ability to understand certification schemes and hold accountable their producer organizations is key in certification schemes' effectiveness (Oya et al., 2017).
- Small producer organization size is limited in accessing export markets, while large producer organization size risk losses in service quality and alienation between producer organization management and membership base (Oya et al., 2017).

Inputs (broadly speaking)

- A general lack of producers' knowledge and understanding of certification schemes is reported.
- Workers committees are reported to have limited decision making power and capacity to act, and may be vulnerable to management manipulation (Oya et al., 2017).
- Certification schemes are generally not able to reach and deliver benefits to the farmers that need them the most. There are important and systematic pre-existing differences in wealth and resources between farmers and such differences are crucial in terms certification reach, despite claims about improving trading conditions for the "small-scale" and "economically disadvantage producers" and addressing poverty of "smallholder" and indigenous farmers (Oya et al., 2017).
- Adoption of certification is also influenced by the presence of external support from buyers, NGOs or other agencies, and by the availability of pre-finance (Oya et al., 2017).

Marketability rate

- A determining factor of the impact of certification on farmer income that emerges from several studies is the marketability rate, the share of certified product that is actually sold as such. Demand constraints leads to producers typically only selling part of their output through certified marketing channels even though all of the production might be certified. Potential earnings are primarily made on the volume of certified produce sold (Kuit & Waarts, 2014).
  - For coffee, only a small share of certified production gets sold in the certified market, despite better prices and premiums in a majority of studies (Kuit & Waarts, 2014).
  - Certified Fairtrade cocoa in Ghana has a low marketability rate (between 7 and 30%), limiting the potential of producers to recover certification costs (Kuit & Waarts, 2014).
- The pre-payment standard is not always properly enforced.
- Pre-payment, credit and the minimum price are often reported insufficient to cover costs of certified production.
- Deductions in the final payment to the producer (producer organizations administrative and certification costs, debt cancellations, price boosters) and oversupply affect the significance of the premium.
- Oversupply of certified products is a common challenge, particularly for Fairtrade, as an important part of certified crops end up at the conventional market. Oversupply also affects the protection from the minimum price mechanism, as protection is related to the portion of production sold to the certified market (Oya et al., 2017).

Role of governments

- Local institutions and politics may hinder or enhance producer organization formation and performance and hence certification scheme effectiveness (Oya et al., 2017).
- Democratic structures, ability to hold governments accountable and strong state regulation policies may limit the role that certification schemes can play (Oya et al., 2017).
- Local power imbalances can affect certification schemes effectiveness and lead to tailoring standards to the local context instead of applying a 'one-size-fits-all rule' (Oya et al., 2017).
- The collective management of the "social" premium can be undermined by local conflicts, lack of common interests, elite capture, and control and manipulation by plantations' management (Oya et al., 2017).
- Strong existing legislation may cause certification schemes standards to become obsolete (Oya et al., 2017).

Costs

A large barrier for the adoption and impact of certification schemes on farmer income, are certification costs and how they compare to the actual benefits. The upfront investment costs may be too high for farmers or certificate-holders, or the payback time too long. Upfront costs of certification consist of training of farmers, set up of the internal control or management system, time spent by management, infrastructure investments and hardware, and opportunity costs for attending certification related meetings and training. Upfront costs will be higher when farmers have to adapt their practices significantly. Recurring costs can be the operation of the internal control system, producer training and premium payments. Kuit and Waarts (2014) performed a cost-benefit analysis for coffee (16 studies), cocoa (15 studies), fruit (11 studies) and vegetables (8 studies), to indicate what the average annual production per farmer needs to be for a farmer to be financially viable (Figure 2). It should be noted that in reality costs for the certificate-holder are likely to be higher than shown here.

For coffee, based on 16 studies a revenue scenario is made with the following assumptions: minimum cost per farmer is € 54.82, maximum cost per farmer is € 102.16, marketability (the average share of the certified produce that gets sold as certified) is set at 32%, the average premium is $5 t/lb of green coffee, upfront costs are amortized over three years. It shows that, to be financially viable, average production per farmer needs to be in the range of 1.72 t to 3.48 t of green coffee beans per farmer, depending on the level of implementation cost.

For cocoa, based on 15 studies, a revenue scenario is made with the following assumptions: minimum cost per farmer is € 103.91, maximum cost per farmer is € 254.72, marketability is set at 47%, the average premium is € 196 per t, upfront costs are amortised over three years. It shows that for the combined investment of certificate-holder and farmer to be financially viable, the average annual production per farmer needs to be in the range from 1.12 to 2.77 t of cocoa beans, depending on the level of implementation cost.

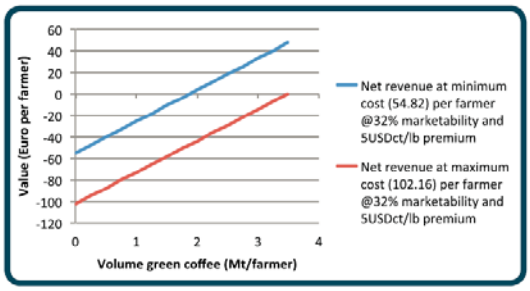
The situation for the certificate-holder alone is somewhat different. Due to relatively lower upfront costs, a certificate-holder can already reach breakeven when volumes per farmer are 0.49 t, under the minimum implementation cost scenario and assuming that 50% of the marketability rate adjusted premium is retained by the certificate-holder. For farmers, the situation is less re-assuring. If all their time invested is valued at going labour rates and assuming the certificate-holder passes on 50% of the adjusted premium, then a farmer would only reach break-even at a production level of 1.77 t. With declining average marketability rate since 2011, and the fear that premium payments are under pressure because certified cocoa is reaching a high market share, the amount of cocoa that needs to be produced per farmer to recoup certification costs is likely to increase in the short- to mid-term.

For fruit, based on 11 studies a revenue scenario is made with the following assumptions: minimum cost per farmer is € 15, maximum cost per farmer is € 192, marketability is set at 80% (mainly based on bananas), the average premium is € 82 per t, upfront costs are amortised over eight years. It shows that to be financially viable at farm level, the average production per farmer must be between 0.22 t and 2.94 t of fruit, depending on the implementation costs.

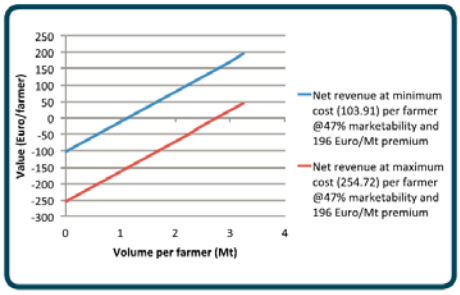
For vegetables, based on 8 studies a revenue scenario is made with the following assumptions: minimum cost per farmer is €55, maximum cost per farmer is €309, marketability is assumed at 80% (no information on the marketability rate for certified vegetables is available from the literature), the average premium is € 21 per t at farm level, upfront costs are amortised over eight

years. It shows that to be financially viable at farm level, average production needs to be in the range of 3.30 t to 18.43 t vegetables per farmer, depending on the level of implementation costs.

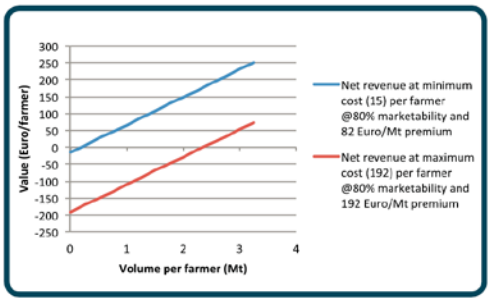
Coffee



Cocoa



Fruit



Vegetables

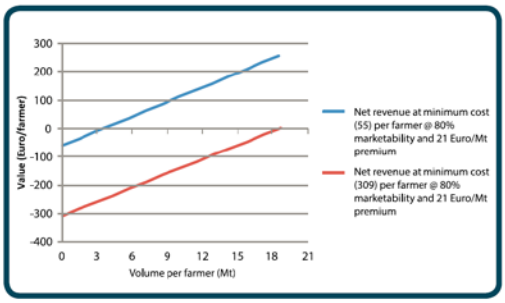


Figure 2 *Revenue scenarios per sector.*

7 Questions for further research

Oya et al. (2017) conclude that the need for additional, as well as better, research on effects and their barriers and facilitators is needed, so that a more consistent picture of the causal chains between different types of interventions under different certification schemes and key intermediate and endpoint outcomes can be drawn. There is scarcity of high-quality impact evaluations (Oya et al., 2017).

Despite the existence of so many different standards and certification schemes the available literature is skewed towards a certain group of well-known certification schemes. It is striking the extent to which impact evaluations of Fairtrade certifications dominate the literature. Therefore, in order to build a more complete understanding of different causal chains for different types of certification schemes, more research is needed on the standards and schemes that are least researched (Oya et al., 2017).

From a methodological viewpoint, both impact evaluation departments of certification schemes and independent researchers need to catch up with the methodological demands for high-quality research in this field, and understand the methodological and logistical challenges that they may entail when conducting primary research. There is a need for mixed-methods theory-based evaluations with appropriate counterfactual designs (Oya et al., 2017).

Context plays a key role in the effects of certification. The variety of effect sizes across outcomes and certification schemes makes it impossible to produce a general statement about whether certification works or does not work (Oya et al., 2017). Furthermore, studies differ in how they approach the effectiveness of certification. For example, only a few studies on coffee include the implementation costs of certification at farm level in addition to production costs. Those that do, tend to conclude that certification is at best cost-neutral for farmers, and in some cases has a slight negative effect on farm earnings. Moreover, studies do not always differentiate between the prices received for all produce sold and the prices received specifically for certified produce (Kuit and Waarts, 2014). Therefore, reporting standards must be improved. Published papers should devote more space and attention to reporting details of how research was conducted, in which context, limitations and all the relevant statistical information. Many studies had to be excluded in Oya et al. (2017) because of basic reporting gaps.

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Report WCDI-18-025

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Report WCDI-18-023

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